ABSTRACT OF THE DISCLOSURE

A digital image processing-based system and method for quantitatively processing a plurality of nucleic acid species expressed in a microarray are disclosed. The microarray is a grid of a plurality of sub-grids of the nucleic acid species. The system includes a scanner that has a digital scanning sensor that scans the microarray and transmits from an output a digital image of the microarray, and a processor that receives the digital image of the microarray from the scanner and then processes the digital image, identifying each of the microarray's sub-grids. The processor then detects in each of the sub-grids a center-representing pixel of a signal of a chemical material and an approximate radius of the signal. Then, the processor segments the signal and calculates a characterizing measure for the segmented signal.